CLAIMS

What is claimed is:

1. A blast liner assembly for use in a solids placement tool within a wellbore, the blast liner assembly comprising:

a) a tubular outer sleeve having a solids flow port therein and presenting a radially interior blast liner retaining section;

b) a solids placement mandrel to be disposed radially within the outer mandrel, the solids placement mandrel defining an interior solids flowbore and a solids exit port; and

c) a blast liner rotatably disposed within the blast liner retaining section of the outer sleeve to lie radially outside of the solids placement mandrel, the blast liner comprising:

1) a generally cylindrical body having a longitudinal axis and defining an interior flowspace with the solids placement mandrel; and

2) an angular flow diverter within the interior flowspace to impart a rotational flow component to a flow of solids slurry through the interior flowspace, the blast liner being rotated within the blast liner retaining section in response to the rotational flow component.

2. The blast liner assembly of claim 1 wherein the angular flow diverter comprises a plurality of flow channels formed upon the body, flow channels being disposed upon the body at an acute angle with respect to the axis of the blast liner body.

3. The blast liner assembly of claim 2 wherein the flow channels comprise a plurality of inwardly projecting vanes.

4. The blast liner assembly of claim 2 wherein the flow channels comprise a plurality of milled grooves in the body.

5. The blast liner assembly of claim 1 further comprising a rotational bearing disposed between the blast liner and the outer sleeve.

6. The blast liner assembly of claim 1 further comprising a means for axially moving the blast liner with respect to the outer sleeve.

7. The blast liner assembly of claim 6 wherein the means for axially moving the blast liner comprises a progressively erodable bushing.

8. The blast liner assembly of claim 6 wherein the means for axially moving the blast liner comprises a lug and track mechanism.

9. The blast liner assembly of claim 1 wherein the blast liner comprises an annular reinforced impingement area upon an interior surface of the body.

10. A system for placement of solids within a wellbore comprising:

a) an extension sleeve assembly to be landed within a wellbore, the extension sleeve comprising:

1) an outer sleeve having a solids flowport therein to be positioned for disposal of a solid-containing slurry within a wellbore;

2) a blast liner rotatably retained within the outer sleeve, the blast liner presenting a reinforced annular impingement area;

b) a service tool to be landed within the extension sleeve assembly, the service tool comprising:

1) a solids placement tool defining a flowbore therewithin and a solids flowspace between an outer surface of the solids placement tool and the blast liner; and

2) a solids exit port within the solids placement tool.

11. The system of claim 10 wherein the blast liner further comprises:

a tubular blast liner body having a longitudinal axis; and

an angular flow diverter having a plurality of flow channels formed upon the blast liner body at an acute angle with respect to the axis of the blast liner body.

12. The system of claim 10 further comprising a progressively erodable bearing within the outer sleeve abutting an axial end of the blast liner body, the erodable bearing being progressively eroded upon rotation of the blast liner to permit the blast liner to move axially within the outer sleeve.

13. The system of claim 10 further comprising:

a radially outwardly projecting lug upon an outer surface of the blast liner; and

a lug track inscribed within an inner surface of the outer sleeve to retain the lug such that rotational movement of the blast liner within the outer sleeve results in the blast liner being moved axially with respect to the outer sleeve.

14. The system of claim 13 wherein the lug track has a double-helical configuration.

15. A method for protecting portions of a solids placement system from erosion damage comprising the steps of:

flowing a solids-containing slurry into a solids placement tool within a wellbore;

flowing the solids-containing slurry radially out of the solids placement tool, axially along a flowspace defined between an outer surface of the solids placement tool and an inner surface of a rotatable blast liner, and then radially outwardly through a solids exit port into the wellbore;

rotating the blast liner with respect to the solids placement tool so as to provide an increased particle impingement area to the slurry, thereby increasing blast liner life.

16. The method of claim 15 wherein the blast liner is rotated by angularly diverting slurry passing axially through the blast liner.

17. The method of claim 15 further comprising the step of moving the blast liner axially with respect to the solids placement tool so as to provide an increased particle impingement area to the slurry, thereby increasing last liner life.

18. The method of claim 17 wherein the step of moving the blast liner axially comprises eroding a member by rotation of the blast liner, said erosion permitting the blast liner to move axially.

19. The method of claim 17 wherein the step of moving the blast liner axially comprises:

a) engaging a portion of the blast liner within a lug track within a liner retaining section; and

b) rotating the blast liner so that said lug track engagement causes the blast liner to be moved axially.

20. The method of claim 19 wherein the blast liner is moved in a double-helical fashion.